FIVE-YEAR REVIEW REPORT

AIDEX CORPORATION

COUNCIL BLUFFS, IOWA

Prepared By:

United States Environmental Protection Agency

Region VII

Kansas City, Kansas

June 1993

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I. INTRODUCTION

Section 121(c) of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act (SARA), and as implemented by section 300.430(f)(4)(ii) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) requires that periodic (at least once every five years) reviews be conducted for sites, where hazardous substances, pollutants, or contaminants remain at the site above levels that allow for unlimited use or unrestricted exposure, following the completion of all response actions for the site. The purpose of such review is to determine the continued adequacy of the response actions implemented in providing protection of human health, welfare and the environment.

The five-year review is to be conducted by the lead agency which is the United States Environmental Protection Agency (EPA), Region 7, for the Aidex Corporation Site. In general, five-year reviews are to be started within five years of the initiation of the final response actions for the site.

The EPA has established three levels of review for five-year reviews. Level I is the lowest level of evaluation of protectiveness, Level II is the intermediate level, and Level III is the highest level of evaluation of protectiveness. A Level I analysis will be appropriate in all but a relatively few cases where site-specific circumstances suggest another level. For example the absence of the expected reduction in contaminant levels, as monitored, may suggest a Level II evaluation of the source control remedial component. Level III will never be proposed until the review is underway and site conditions dictate a more intensive review of the remedy. Aidex is receiving a Level I review because site conditions do not suggest a need for a more in-depth review of the protectiveness of the remedy.

All decisions for response actions at the Aidex Site were completed by 1984, prior to any requirements for a five-year review under CERCLA or the NCP. However, as a matter of policy the EPA conducts five-year reviews at sites addressed pre-SARA where hazardous substances, pollutants, or contaminants remain at the site which does not allow unlimited use and unrestricted exposure. This five-year review is a policy review.

A. Site History and Conditions

The Aidex Corporation Site, which covers approximately 20 acres, is located in a rural area of Mills County, Iowa about 7 miles south-southeast of Council Bluffs, Iowa, and lies near the Missouri River floodplain. The distance to the Missouri River

channel is about three miles. The property is bounded on the west by the St. Mary's drainage ditch (the major drainage ditch in this part of the floodplain), on the north and east by a county road, and on the south by a cultivated field.

The plant formulated various organochlorine, organophosphate, and triazine pesticide compounds from 1974 to 1981. Spills of technical grade pesticides during transfer of the material from tank cars to formulation equipment and the procedures used by Aidex for handling, storage and disposal of process wastes resulted in the release of at least sixteen pesticide compounds into the environment. Liquid process wastes were stored in a leaking underground storage tank. Dry solid pesticide wastes were stored onsite in stacks of open and/or badly deteriorated drums and were buried in two unlined trenches onsite. Technical grade pesticides stored in the liquid formulation building at the site and pesticide wastes were spread by the water used to extinguish a fire in the liquid formulation building in 1976. Following owner bankruptcy in 1981, quantities of pesticide wastes were also spilled on the facility grounds during salvage operations.

The site was placed on the Interim Priorities List on October 23, 1981. During December of 1981 the site was fenced off using removal authority. The site was then placed on the proposed National Priorities List (NPL) on December 30, 1982 (Federal Register Volume 47, Number 251). On September 8, 1983, the NPL designation became final (Federal Register Volume 48, Number 175). The principal threats posed by the site were direct contact (ingestion, inhalation and dermal) with pesticide contaminated soil and wastes located at the site by humans and wildlife. The pesticide contaminated solids, liquids, and sludges were also a source for continued groundwater contamination.

B. Summary of Response Actions (Site Cleanup)

A remedial investigation/feasibility study (RI/FS) was performed by EPA between 1982 and 1984. During the RI/FS an initial remedial measure (IRM) was conducted to remove some immediate hazards associated with the pesticide contamination. The IRM consisted of on-site collection, bulking, and temporary staging of pesticide contaminated solids, liquids, and sludges, construction of an interceptor drainage ditch around a portion of the site, decontamination of the basement remains of the building destroyed by fire and an underground tank, and off-site transport and disposal of bulk liquid wastes and staged waste materials. The IRM was completed in 1983.

The remedial action was initiated in 1986 and consisted of excavation and offsite disposal of contaminated soils exceeding 10 parts per million (ppm) total pesticides and backfilling with clean fill, cleanup of the four onsite buildings and a batching pit, construction of three groundwater monitoring wells, and groundwater monitoring. A decision regarding the necessity for containment and treatment of the contaminated aquifer was deferred pending further groundwater analysis. The construction activities were completed in May 1987. Over 20,000 yd^3 of contaminated soil was excavated and disposed at a RCRA permitted offsite landfill. The buildings and a batching pit were cleaned and three additional groundwater monitoring wells were installed. The excavated areas were backfilled with clean fill, graded, and seeded. These actions addressed the principal threats posed by the contamination.

C. Post Response Action Activities

Based on sampling of the onsite building interiors in 1987 and 1988, an engineering evaluation/cost analysis (EE/CA) was proposed in November 1990 to assess alternatives for additional cleanup of the building interiors. Based on public comment on the EE/CA, air sampling of the building interiors was performed in August 1991 in order to determine if there were any significant risks to human health or the environment. The results of the air sampling showed that there were no significant risks posed by the residual contamination in the buildings. Therefore no further response actions were needed on the buildings at the Aidex site.

In May 1990, the Iowa Department of Natural Resources (IDNR) prepared a report on the assessment of the groundwater at the Aidex Site. The report suggested modifications to the groundwater monitoring plan. EPA reviewed and approved the report and the plan proposed by the IDNR became the new groundwater monitoring plan. Twelve (12) groundwater monitoring wells are being sampled on an annual basis with two additional wells being sampled every three years. IDNR is conducting the annual sampling.

In September 1991 an explanation of significant differences (ESD) was prepared by EPA outlining the decision of no further action on the groundwater at the Aidex site. The ESD explained that the levels of contamination in the groundwater do not currently pose any significant risks. Only one contaminant is being detected in the groundwater, Atrazine, and only in onsite wells. No contamination is being detected offsite, in any downgradient monitoring wells. However, since the concentration of Atrazine is above the current maximum contaminant level (MCL)

of 3 parts per billion (ppb), monitoring of the groundwater will continue until the atrazine levels fall below the MCL.

The State of Iowa has also implemented institutional controls on the site limiting changes in land use by placing the site on a State registry. The Aidex site has been on the State of Iowa's **Registry of Hazardous Waste or Hazardous Substances Disposal Sites** as the "Toy National Bank and City of Glenwood Site" since 1984. The site is currently classified on the **Registry** as a Class "d" site properly closed and requires continued management. Iowa Code section 455B.430 describes the authority of the Iowa Department of Natural Resources with respect to use and transfer of sites on the **Registry of Hazardous Waste or Hazardous Substances Disposal Sites.** There are no specific restrictions. In summary, a person shall not substantially change the manner in which a **Registry** site is used or sell or transfer title of a **Registry** site without written approval of the Director of the Iowa Department of Natural Resources.

II. REMEDIAL OBJECTIVES

Although the remedial objectives were not specifically delineated in the Record of Decision (ROD) the following were the remedial objectives for the activities conducted at the Aidex site:

A. Reduce exposure to contaminated material located in onsite burial trenches.

B. Reduce exposure to contaminated soils at the site.

C. Reduce exposure to contaminated porous materials and dust within onsite buildings.

D. Reduce contamination of onsite groundwater.

E. Reduce exposure to contaminated groundwater.

Objectives A and B were addressed by excavation and removal of the contaminated material located in the burial trenches and in onsite soils. All material above 10 parts per million (ppm) total pesticides was removed and transported to a permitted hazardous waste landfill. These two objectives were met as part of the remedial action.

Objective C was addressed as part of the remedial action by a high pressure steam cleaning of the interior of the buildings. The cleaning was done using detergents. Following this cleaning,

sampling was done of the porous building materials in 1987 and 1988 and some residual contamination was discovered in the porous materials (wallboard, insulation, concrete). However, the dust from the buildings was removed and air sampling of the building interiors was done in 1991. The air sampling demonstrated that the residual contamination posed no significant risks to human health or the environment.

Groundwater monitoring was performed to address objective D. EPA believed that by removing the source of the groundwater contamination, the contamination would naturally attenuate over time. In the ROD, EPA decided to postpone the decision regarding groundwater treatment pending monitoring of the groundwater after source contaminant removal. In retrospect the decision was a sound one, because only one contaminant is now being detected in the groundwater, atrazine (only in onsite wells). The concentration of atrazine in groundwater has dropped from a high of 1200 ppb in 1985 to 44 ppb in 1992. EPA decided in 1991 that the groundwater contamination posed no significant risks to human health and the environment and no treatment would be required to address the groundwater contamination. However, groundwater monitoring will be continued until the levels of atrazine fall below the MCL of 3 ppb.

In regard to objective E no groundwater contamination was discovered offsite and no onsite water was used for consumption so there was effectively no exposure to the groundwater contamination. Onsite water is prohibited from being used as a drinking water source and the restriction will continue until the MCL for atrazine is no longer exceeded. No future exposure is anticipated.

III. ARARs REVIEW

At the time the ROD for the Aidex site was prepared there was not specific criteria for identification of applicable or relevant and appropriate requirements (ARARs). Therefore an identification of ARARs was not conducted for the Aidex site as part of the ROD. However, EPA as part of this five year review identified potential requirements which currently may be applicable or relevant and appropriate and determined if the conditions at the site were in compliance with these requirements. Two very similar ARARs were identified which impacted the conditions and future activities at the Aidex site, the MCL for the contaminant atrazine of 3 ppb and a state groundwater action level of 3 ppb in the Iowa Administrative Code [567], Chapter 133; Rules for Determining Cleanup Actions and Responsible Parties. The past remedial actions and ongoing

monitoring satisfy the requirements of Chapter 133 of the Iowa Code and MCL.

IV. SUMMARY OF SITE VISIT

The Site was visited in August 1991 and again in May 1992 by the EPA remedial project manager (RPM). The purpose of the visits was to oversee air monitoring activities (August 1991) and to begin the five-year review process to determine the current status of the site and evaluate the protectiveness of the site cleanup. The Iowa Department of Natural Resources was given prior notice of these site visits and was briefed on the observations made by the RPM while at the Site.

During the August 1991 and May 1992 site visits the RPM made the following observations relating to the current status of the Site and the continued protectiveness of the Response Actions:

A. The soil and vegetative covers were intact and in good condition. Both visits found very thick vegetation in all areas of soil removal.

B. The fence around the site was still intact and in fairly good condition. One area in the fence was damaged, apparently by vandals.

C. The monitoring wells on and around the site were in good condition and functional. No damaged well casings were noted. During the May visit the IDNR was performing the annual groundwater monitoring.

D. There was some evidence of trespassing and vandalism. Doors and windows in the buildings on the site have been broken and the buildings are apparently used by vagrants for shelter from the cold. The site is in a rural setting very near Interstate Highway 29 and apparently has been visited by trespassers. There are no significant risks posed to trespassers because the only identifiable hazards left at the site is the groundwater and no damage to any of the groundwater monitoring wells was observed. However, the state will continue to maintain the site as necessary and the local authorities have been notified of the trespassers. The county authorities patrol the area on a regular basis to prevent any further trespass.

V. AREAS OF NON COMPLIANCE

No deterioration in groundwater quality has been observed. As mentioned the only contaminant currently being detected in the groundwater is Atrazine and the concentration has dropped from 1200 ppb in 1985 to 44 ppb in May 1992, so groundwater quality is improving.

Although some residual contamination was discovered in the porous materials (wallboard, insulation, concrete) within the buildings in 1987 and 1988 this did not pose a significant risk to potential receptors. An inspection of the buildings did not discover and new or significant problems in this regard.

As mentioned the site is located in a rural setting and has been abandoned since 1981. The closest neighbor to the site is nearly one-half mile away. Since there is no offsite contamination in the groundwater and the source of pesticide contamination has been removed there are no significant risks posed to any nearby residents.

No deficiencies or deterioration in the Response Actions for the Site were found in this five-year review. Evidence indicates that the groundwater water quality is improving and the small amounts of residual contamination within the buildings does not pose a problem with current land use. The soil and vegetative cover are intact. Even though some minor trespasses have occurred, this has not affected the protectiveness of the response actions. Land use has not changed for the site since the completion of the response actions in 1987 and no future changes are anticipated from the original industrial use. No specific or general deficiencies were identified in this five-year review which need to be addressed.

VI. RECOMMENDATIONS/TECHNOLOGY

In addition to the Site visits, the following documents, data and information were reviewed in completing the five-year review:

A. The remedial action construction documents.

B. The EPA-approved State groundwater monitoring plan.

C. The ROD, in which EPA determined the final response actions at the site, including all attachments.

D. The Interim Remedial Measure Report.

E. Historical and current analytical data on the Site including the most recent analytical data on the groundwater samples collected by the Iowa Department of Natural Resources.

F. Indoor Air Quality Evaluation Report for the Aidex site.

G. EPA guidance for conducting five-year reviews and other guidance and regulations to determine if any new applicable or relevant and appropriate requirements (ARARs) relating to the protectiveness of the Remedy have been developed since EPA completed the remedy in 1987.

In addition, EPA consulted with the Iowa Department of Natural Resources and local authorities both before and after initiating the five-year review to solicit their opinions.

Based on the site visit and document review the only recommendations identified for the Aidex site are continued monitoring of the groundwater. The current procedures as outlined in the 1990 EPA approved IDNR groundwater report for continued groundwater monitoring will be adequate to maintain protectiveness at the site. The monitoring will need to continue until the atrazine concentrations fall below the MCL of 3 ppb. Groundwater monitoring is a well established technology so no technological problems are anticipated. No other recommendations or actions are necessary at this time.

VII. STATEMENT ON PROTECTIVENESS

The response actions completed by the EPA together with the long-term maintenance and monitoring being provided by the IDNR and local authorities continue to protect human health, welfare and the environment at this Site. No new or significant information was discovered during this review to indicate that the remedy does not continue to be protective.

VIII. NEXT REVIEW

EPA believes that five-year reviews will continue to be necessary at this Site, since hazardous substances, pollutants or contaminants remain at the Site above levels that allow for unlimited use or unrestricted exposure. Accordingly, EPA plans to perform another five-year review in 1997.

IX. IMPLEMENTATION REQUIREMENTS

Since no further actions except continued groundwater monitoring will be conducted at the Aidex site there are no additional implementation requirements. The implementation of the groundwater monitoring will continue as it has since 1987 when IDNR began conducting the groundwater monitoring. No problems with implementation are anticipated.

Region VII intends to develop a Fact Sheet after it signs this five-year review report. This Fact Sheet will be sent to individuals or organizations on the mailing list developed for this site and will state that EPA has completed a five-year review for this site and that the response actions completed for this site continue to protect human health, welfare and the environment. The Fact Sheet will also note the next five-year review for this site planned for 1997.

X. QA/QC

Appropriate quality assurance and quality control procedures were performed in conjunction with all activities associated with the five year review. All activities maintained acceptable quality standards.

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William W. Rice Date
Acting Regional Administrator

ATTACHMENT 1

STATE OF IOWA

TERRY E. BRANSTAD, GOVERNOR

DEPARTMENT OF NATURAL RESOURCES
LARRY J. WILSON, DIRECTOR

May 10, 1993

Steven L. Sanders
Superfund Branch
U.S. Environmental Protection Agency
Region VII
726 Minnesota Ave.
Kansas City, KS 66101

RE: Aidex Superfund Site Closeout Report

Dear Steve:

We have reviewed the March 1993 Draft Five-Year Review Report for the Aidex Corporation Superfund Site south of Council Bluffs, Iowa and have two minor modifications. On page 5 the state registry is now entitled Registry of Hazardous Waste or Hazardous Substances Disposal Sites and on page 6 an additional ARAR should be the Iowa Administrative Code [567], Chapter 133: Rules for Determining Cleanup Actions and Responsible Parties. In accordance with Chapter 133, a *groundwater action level* for atrazine would be 3 ppb which is the same as the MCL. The past remedial actions and ongoing monitoring satisfy the requirements of Chapter 133. With these two minor changes, we concur with the Five-Year Review Report. A copy of the 1992 Annual Report for the registry and a copy of Chapter 133 are attached.

We are also believe that deleting this site from the National Priorities List is appropriate and will support actions to do so. Please contact Bob Drustrup of my staff at (515) 281-8900 if there is any further input you would like from the state.

Sincerely,

Allan E. Stokes
Administrator
Environmental Protection Division